Survey Shows...
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Frequent Mental Distress Prevalence and Disparity: Hawaii BRFSS 2005-2007

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State of Hawaii

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I would like to acknowledge the adult residents of Hawaii who voluntarily participated in the HBRFSS. Without their participation this report as well as other studies derived from HBRFSS would not have been possible. We would also like to acknowledge the survey interviewers for their patience in on-going data gathering. Special thanks to *JoAnn Umilani Tsark*, Research Director at Papa Ola Lokahi; *Karen J. Krahn*, Chief of Clinical Operations, *Dr. Philippe L. Gross,* Research Psychologist and *Dr. William P. Sheehan,* Medical Director, at the Adult Mental Health Division; and to *Susan C. Jackson*, Deputy Director of Health for their in-depth review and insightful comments. Finally, we would also like to thank *Dr. Chiyome Leinaala Fukino*, Director of Health at DOH for her continuous support.

About the Hawaii Behavioral Risk Factor Surveillance System (HBRFSS)

The HBRFSS is an ongoing land-based random telephone survey of randomly selected adult residents 18 years and older on behaviors that affect health directly and indirectly. The HBRFSS is funded by the Centers for Disease Control and Prevention (CDC) as part of the national Behavioral Risk Factor Surveillance System (BRFSS). The HBRFSS has been in operation since 1986. For more information about HBRFSS results, please visit the following website: http://hawaii.gov/health/statistics/brfss/index.html. If the information you are looking for is not on the website, you may contact the state BRFSS coordinator via e-mail at brfsshi@doh.hawaii.gov or via phone at 808-586-4509.

MESSAGE FROM THE DIRECTOR

The State of Hawaii Department of Health is pleased to present the second report on mental health derived from a population-based survey, the Hawaii Behavioral Risk Factor Surveillance System (HBRFSS) of 2005 to 2007.

An insight to the general mental health of the adult population can be gleaned from the BRFSS question *"Now, thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"*. A response of fourteen days or more is indicative of frequent mental distress (FMD).

This report, "Frequent Mental Distress Prevalence and Disparity: Hawaii BRFSS 2005-2007" examined the prevalence of frequent mental distress at the state and county levels and among the major ethnic groups. It also compared socio-economic status, general health, health practices, health care access, social support and life satisfaction between adults with frequent mental distress and those without it. The findings clearly illustrate the relationship between mental health and physical health. The results indicate that while frequent mental distress affects all segments of the population, it is strongly associated with disabling conditions and non-optimal health status as indicated by the presence of chronic condition(s) or disease(s). It also demonstrated that disparities exist in ethno-socio-economic circumstances with adults more likely to suffer frequent mental distress when they could not see a doctor due to cost. Further, it was shown that ethnic health disparity in FMD prevalence appears to be an artifact of socio-economic status.

We hope that this report will be used for integrated planning, implementation and evaluation of programs to improve the mental health status of the people of Hawaii and especially for those among us who are the most vulnerable.

This report would not have been possible without the survey participation of the people of Hawaii. Together we can work for a healthier Hawaii.

Sincerely,

Chiyome Leinaala Fukino, M.D.
Director of Health

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EXECUTIVE SUMMARY

For the calendar years 2005 to 2007 combined, the average adult frequent mental distress (FMD) prevalence rate in the state was 8.3%. The FMD prevalence rate of 8.3% is the same as the current depression prevalence rate (8.3%) estimated for calendar year 2006 alone. It is also close to the prevalence rate of lifetime anxiety (8.0%) and lifetime depression (8.8%) for calendar year 2006.

This report also showed that during the period 2005-07:

(1) There is no significant difference in the average FMD prevalence rate between counties in the state of Hawaii
(2) Adults 65 years or older had a significantly lower prevalence rate of FMD than younger adults;
(3) Females had a higher FMD prevalence rate than males;
(4) Among major ethnicities in the state, Hawaiians (including part-Hawaiians) had the highest FMD prevalence and Japanese had the lowest; however, this disparity is an artifact of socio-economic factor combined with age. When these factors are controlled for, the ethnic disparity disappeared.

Other highlights shown in this report:

FMD is associated with marital status, adult household size, emotional support and life satisfaction.

- The adult household size variable can be a proxy variable for marital status.
- Those with FMD are less likely to be married as compared to adults without FMD and are more likely to be in the single adult households.
- As a natural consequence of living as a single adult, the presence of emotional or social support may be lacking or less likely and subsequently may lead to life dissatisfaction. Even after controlling for the risk markers, the odds ratio of FMD for adults who received less frequent emotional support and for adults who were dissatisfied with their life are significantly higher as compared to those who always received emotional support and were at least satisfied with their life.

FMD is related to socio-economic circumstances.

- Adults who received a higher education, were employed and lived in households with higher incomes are more common in the group that had no FMD. In contrast, adults with limited socio-economic resources (low level of education, employment problems especially being unable to work, and low annual household incomes) are more common in the group with FMD.
- FMD is also associated with affordability of health care. As compared to those who did not have cost constraints, adults who could not see a doctor due to cost had significantly higher odds of FMD even after adjusting for the risk markers.

FMD is related to perceptions of one's health.

- There is a strong association between the respondents' perceptions of general health and their FMD status. Adults with FMD are more likely to report being in fair or poor health than adults with no FMD. This perception of fair/poor health is substantiated by the high prevalence of chronic disease(s) in the FMD group.
- Prevalence rates of chronic diseases (asthma, diabetes, obesity and cardiovascular diseases) among adults with FMD are significantly higher than the prevalence rates in the no FMD group.
- The proportion of adults in the FMD group with disability(ies) (limited activities or have to use special equipment(s)) is much larger than that in the no FMD group. These associations persist even after adjusting for the risk markers.

FMD is related to healthy lifestyle behaviors.

- Associations exist between respondents' FMD status and healthy lifestyles. Those who have FMD are more likely to engage in smoking or heavy drinking than those who do not have FMD. The odds ratio for FMD is significantly higher even after adjusting for the risk markers.

INTRODUCTION

Mental health is fundamental to overall health. [1] Mental disorders and/or mental illnesses are health problems that can affect anyone, regardless of sex, race, education, social or economic status.[2] In the United States, about one in five adults suffers from one or more mental illnesses in any given year.[3] Adults with mental illnesses can have a substantially decreased capacity of coping with daily life. They may also be more prone to chronic diseases that may further exacerbate their mental health condition. Studies have indicated an association between chronic diseases and mental health.[4] In addition, more patients with mental illnesses are hospitalized than patients with other illnesses. [5] Therefore, the economic burden of mental illness on society is high due to productivity lost and treatment costs.

The exact causes of mental disorders remain unknown. The most common plausible explanations for mental illnesses include genetic reasons, in which the mental disorder is passed down from one generation to the next, and chemical reasons, in which an imbalance in the chemicals in the brain causes the mental illness. It is also believed that other factors such as trauma[6,7], environment[8], and chronic diseases[4,9] contribute to mental illness.

Frequent mental distress (FMD) is defined as fourteen days or more days of self-reported mental health being "not good" in the past 30 days. This report presents the adult FMD prevalence rate in the state of Hawaii by county, age, gender and ethnicity. This report also compares adults with FMD versus those without FMD in terms of the factors relating to socio-economic status, marital status, adult household size (number of adults in the household), perceived general health, presence of chronic diseases and disabilities, health lifestyles, health care access, social support and life satisfaction. These findings are presented to program planners and healthcare providers to enhance their understanding and service to the segments of the state adult population in need of mental health care.

DATA SOURCE AND METHOD

The Hawaii Behavioral Risk Factor Surveillance System (HBRFSS), sponsored by the Centers for Disease Control and Prevention (CDC) as part of the nationwide Behavioral Risk Factor Surveillance System (BRFSS), is an ongoing land-based, random-digit-dialed telephone survey that collects information from non-institutionalized adult residents 18 years or older. The adult to be interviewed in a household with more than one adult is randomly selected. Information on health status, health practices, and health care coverage is collected.

The BRFSS questionnaire includes the following general mental health question:

"Now, thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"

Persons who reported that their mental health was not good for 14 or more days in the prior month were identified to have frequent mental distress (FMD). This 14-day minimum period

was selected because physicians and clinical researchers often use a similar duration period as a marker for clinical depression and anxiety disorders.[10]

The statistics presented in this report are derived from three years of Hawaii BRFSS from the calendar years of 2005 to 2007. The 2005-2007 survey data includes 19,338 respondents. Age in most cases is a confounding variable; thus, the data was age-adjusted using the U.S.2000 projected census population distribution #9 as the standard population[11] for most of the two-way analysis or bi-variate analysis. Test of significant difference in the proportion of a specific attribute between adults with FMD and without FMD was performed with alpha = 5% as the significant test criterion. The 'unadjusted' odds ratio (OR) was also computed to measure significant association of FMD and a specific attribute. The adjective 'unadjusted' is used to mean that only two variables were used in the computation of the OR, the FMD variable and the specific variable of interest. As mentioned earlier, age is a confounding variable. However, there are other confounding variables and variables correlated with age and FMD; thus, multi-variate analysis was done to compute for the 'adjusted' odds ratios (AOR). The FMD variable is used as the dependent variable and the age group, gender, ethnicity, education, employment, annual household income and marital status are the adjustment variables or risk marker variables[12]. The specific chronic disease(s), healthy lifestyle behavior(s), health access, social support and life satisfaction variables are the independent variables. The 95% confidence interval of unadjusted OR and AOR was computed. The statistical analyses included in this report were done using version 9 of SAS and SAS callable SUDAAN software. The specific features of SUDAAN that were used in the analysis are proc crosstab, proc descript and proc rlogist.

This study or report is limited in that: (1) the BRFSS data is from a cross-sectional survey, thus, no causation or cause and effect can be concluded, only association between variables; (2) the estimated FMD prevalence rates are probably underrepresented because not every household has a landline phone and the homeless are not part of the survey population. It also may be underestimated because not all the randomly selected adult respondents were able to participate due to language barrier (non-English speaking), absence during the interviewing period, had health problems during the interviewing period; and finally, (3) certain population groups are small and may not have been sampled, or an insufficient number participated to achieve a stable estimate.

The survey participation rate using the Council on American Survey Research Organization (CASRO) index for the three-year period on average is 50.4%. This participation rate is well above the 41% minimum participation requirement of CDC.

Table1. CASRO Rate and Number of Adults Participated in the Survey by Calendar Year

Calendar Year	2005	2006	2007
CASRO Rate	51.3%	48.0%	51.9%
Total participants	6,416	6,564	6,603
Number and Percent that Answered *"Now, thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"*	6343 (98.8%)	6463 (98.4%)	6546 (99.1%)

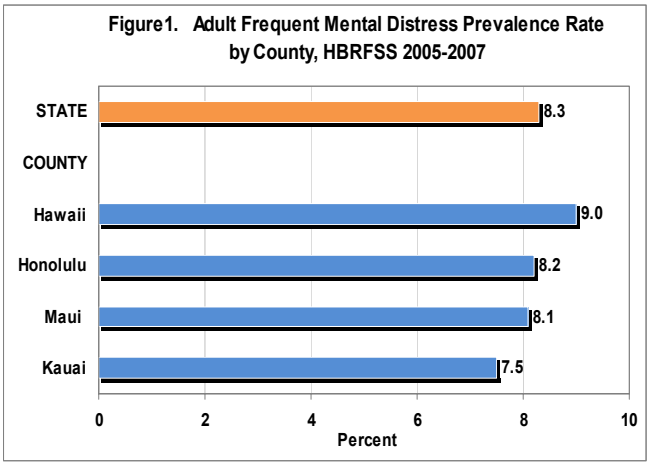
[12] Risk marker variable 'is associated with health outcome with no assumption of causality'. Source: Analytic Methods in Maternal and Child Health, page 5.

ANALYSIS AND DISCUSSION

1. FMD Prevalence by Selected Demographic Characteristics

State and County

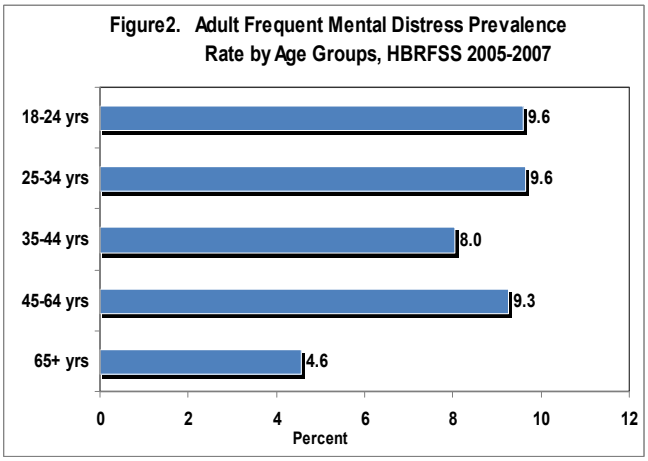
For the calendar years of 2005-2007 combined, the average prevalence rate of frequent mental distress (FMD) for the state of Hawaii was 8.3%. This estimate of FMD prevalence rate is close to the reported lifetime anxiety prevalence rate (8.0%) and lifetime depression prevalence rate (8.8%), and is the same as the 2006 estimate of current depression prevalence rate (8.3%) shown by Salvail and Smith[13] study. In addition, the same study showed that depression was strongly associated with FMD. This suggests that when the intended purpose is to have an estimate of the general mental health status of the adult population, the FMD based on one question in mental health may be a sufficient and economical indicator.



Similar to the pattern in the Salvail and Smith study, Hawaii County report the highest FMD prevalence (9.0%), followed by Honolulu (8.2%), Maui (8.1%), and Kauai (7.5%). However, among these four counties, the FMD prevalence rates are not significantly different from each other.

Age

Residents aged 65 or older have the lowest FMD prevalence rate (4.6%), which is significantly lower than the prevalence rates of any other age group. This result suggests that the state's elderly are in relatively good mental health. However, this is probably so because this same group survived the challenges of earlier or younger years. Alternatively, individuals who are not in good mental health may not have survived to an older age. Some studies report that those with mental health

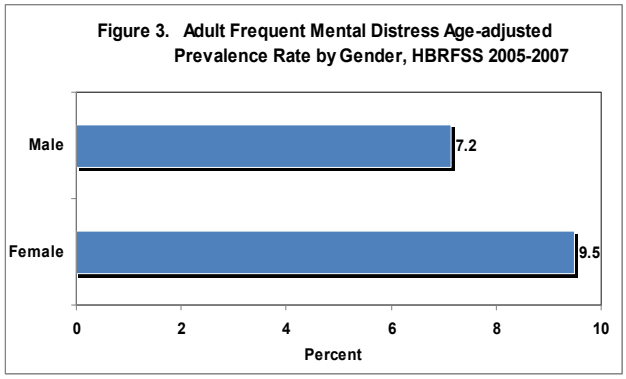


disorders die earlier than those without mental health disorders[14,15,16]. FMD prevalence rates among younger adults, such as those in age groups of 18-24 years, 25-34 years, 35-44 years, and 45-64 years are not significantly different from each other.

Gender

Women are more likely than men (9.5% vs. 7.2%, significantly different at $p<0.01$) to have FMD.

The difference may be attributed to the fact that men tend to keep to themselves or may fail to admit that they have mental health issues because it may be perceived as being weak.

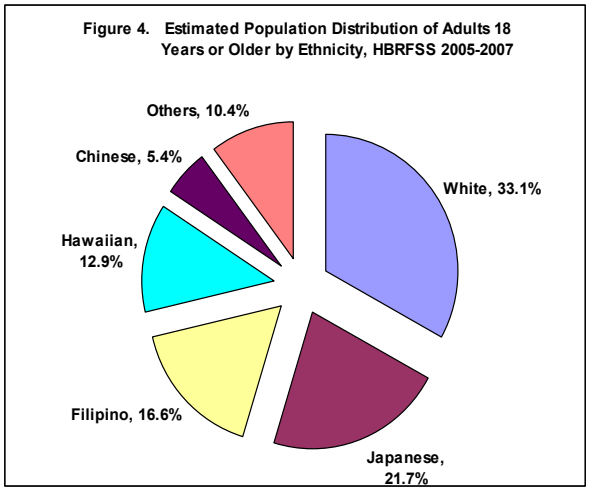


Ethnicity

The population of Hawaii is ethnically diverse and no single ethnic group comprises more than 50% of the population. However, there are dominant ethnic groups as shown in Table 2 and Figure 4. Together, Whites, Japanese, Filipinos, Hawaiians (including part Hawaiians) and Chinese comprise about 90% of the adult population18 years and above. Koreans, Samoans, Blacks, Vietnamese, Mexicans and all the other ethnic groups are categorized as 'Others' in this report. They represent less than 11% of the adult population and correspondingly their respective sample sizes are small. Thus these groups are not separately analyzed and presented in the report.

Table 2: Estimated population distribution of adults 18 years or older by ethnicity, HBRFSS 2005-2007

Ethnicity	Estimated Population of 18 Years and older	Ethnic Distribution
White	318,015	33.1%
Japanese	208,410	21.7%
Filipino	159,207	16.6%
Hawaiian	123,618	12.9%
Chinese	51,783	5.4%
Others	99,646	10.4%
Total	960,679	100.0%



As shown in Figure 5, the Hawaiians have the highest FMD prevalence rate (10.9%) among the five major ethnic groups in the state. It is significantly higher than that of Whites, Filipinos, Chinese and Japanese ($p<0.02$). In contrast, Japanese have the lowest FMD prevalence rate of 6.1%. However, it is not significantly different from the FMD prevalence rates of the Filipinos and the Chinese. The low FMD prevalence among Asians should be interpreted with caution since Asian cultures tend not to report mental health problems because of associated stigma, shame or personality weakness.

The high FMD prevalence rates among Hawaiians may be attributed to socio-economic factors reflected in Table 3. More than half (56.1%) of Hawaiians have only high school or less education, and a quarter of the Hawaiian adult population lives in households with annual incomes less than $25,000. This result agrees with the findings in the study, 'Income and Poverty among Native Hawaiians'[17] that the Hawaiians are among the most socio-economically disadvantaged ethnic groups within the state of Hawaii. The confounding effect of socio-economic factors is evident in Table 4. Table 4 shows that for the Hawaiian group, the unadjusted OR is 2.0 with 95% CI of 1.6 to 2.6, meaning the Hawaiians are twice as likely to suffer from FMD compared to Japanese.

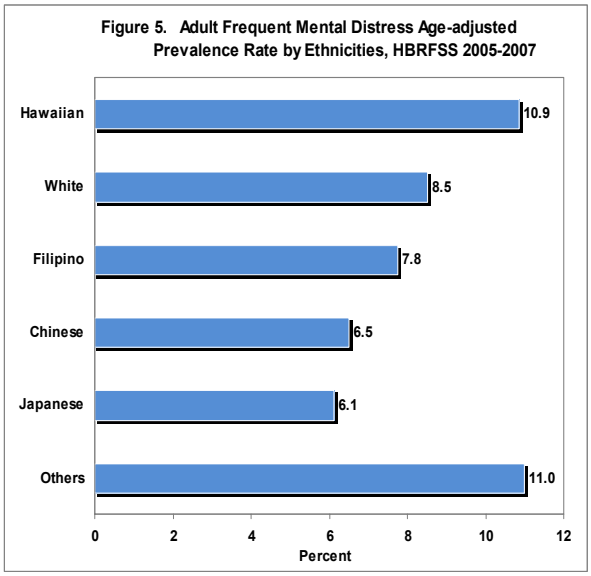


Table 3. Ethnic Group Education, Employment and Household Income

HBRFSS 2005-2007

	State	Hawaiian	White	Filipino	Chinese	Japanese	Others
EDUCATION STATUS							
<High School	5.6	8.7	3.9	8.3	2.8	4.1	10.7
High School	30.0	47.4	23.5	33.7	22.8	25.9	36.2
Some College	29.2	27.5	29.4	33.4	22.2	28.3	28.5
College	35.0	16.3	43.2	24.4	52.2	41.5	24.4
EMPLOYMENT STATUS							
Unable to work	3.5	5.8	4.0	2.0	2.8	1.6	5.1
Unemployed	2.9	3.8	3.0	2.8	1.1	1.9	5.1
Student/Homemaker	9.4	9.4	9.1	9.2	9.4	7.0	13.2
Employed	64.6	66.7	64.5	73.7	59.9	57.3	68.5
Retired	19.5	14.3	19.4	12.2	26.6	32.1	7.8
HOUSEHOLD INCOME							
<$25,000	16.7	25.0	14.3	17.2	14.1	12.8	28.9
$25,000-$49,999	26.3	29.5	23.5	34.2	23.8	22.4	27.6
$50,000-$74,999	17.4	15.7	18.1	17.1	20.9	18.2	11.4
>=$75,000	26.0	17.8	33.6	15.0	29.5	30.9	16.1
Unknown/Refused	13.5	12.1	10.5	16.5	11.8	15.7	16.0
TOTAL SAMPLE	19352	2471	8142	2426	812	3866	805
ESTIMATED ADULT POPULATION	969626	124113	319954	159678	52296	209431	48843

However, after adjustment, Hawaiians are just as likely to suffer from FMD as the Japanese (adjusted OR for Hawaiians is 1.3 with 95% CI of 1 to 1.7). In sum, when education, employment, income and age group are controlled or adjusted for as shown in the AOR column of table 4 and the corresponding 95% confidence interval, the FMD odds ratio for White, Hawaiian, Filipino and Others relative to Japanese are not significantly different from Japanese or from any of the ethnic group considered.

Table 4. Unadjusted and Adjusted Odds Ratio for FMD by Ethnic Group, HBRFSS 2005-2007

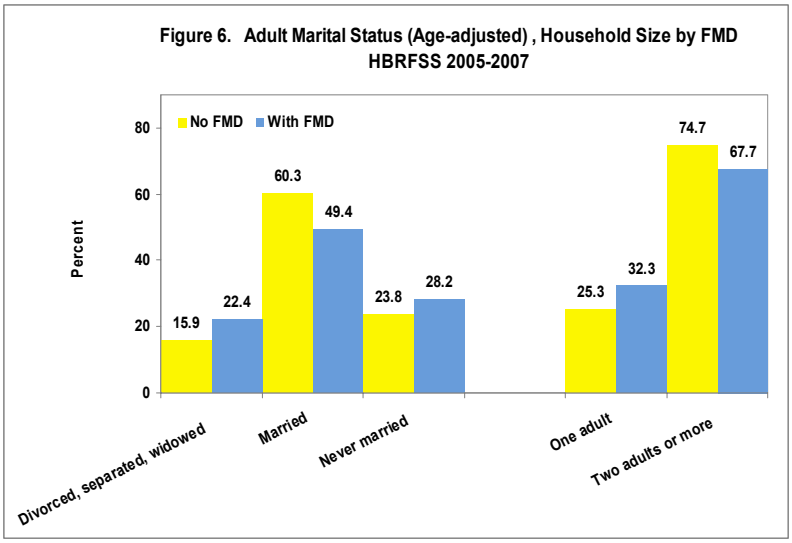
	Unadjusted Odds Ratio	95% Confidence Interval		Adjusted Odds Ratio	95% Confidence Interval	
Ethnic Group	(OR)	Lower limit	Upper limit	(AOR)	Lower limit	Upper limit
White	1.5	1.2	1.8	1.3	1.0	1.6
Hawaiian	2.0	1.6	2.6	1.3	1.0	1.7
Chinese	1.1	0.7	1.7	1.0	0.6	1.7
Filipino	1.4	1.1	1.9	1.1	0.8	1.5
Japanese	1.0	1.0	1.0	1.0	1.0	1.0
Others	2.1	1.6	2.7	1.3	1.0	1.8

2. Adults with FMD and without FMD

Socio-economic characteristics

Marital Status

FMD is significantly associated with marital status. Being married appears to shield or protect one from FMD. Figure 6 shows that among adults who are without FMD, the proportion married is significantly higher as compared to those with FMD (60.3% vs. 49.4%). In each category of marital status, the proportion difference between the FMD group and no FMD group is statistically significant at $p<0.01$.



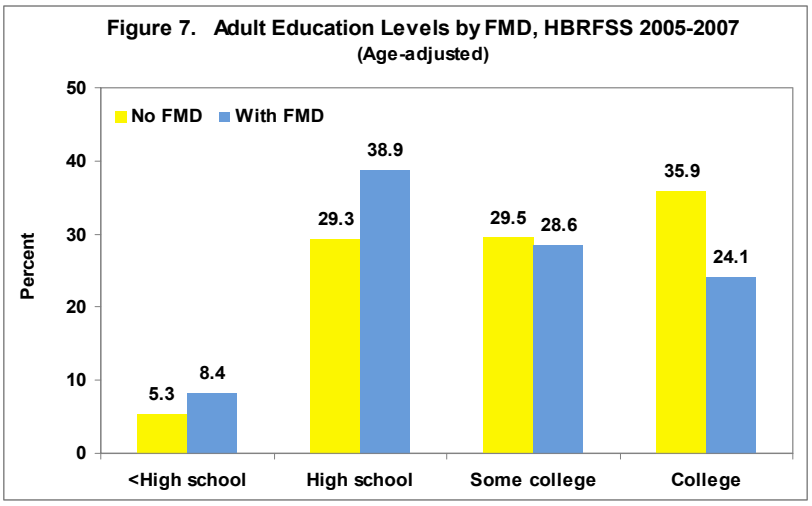
Adult Household Size

Adult household size is defined by the number of adults in a household. Unmarried adults are more likely to live in household without other adults. Nearly 26% of all households in the

state are single adult households or household with only one adult. A significantly higher proportion of single adult households can be found in the FMD group as compared to the no FMD group (32.3% vs. 25.3%, see Figure 6). This finding is consistent with the marital status finding in that adults with FMD are less likely to be married than adults without FMD. This finding suggests that adult household size can be used as a proxy variable for marital status.

Education

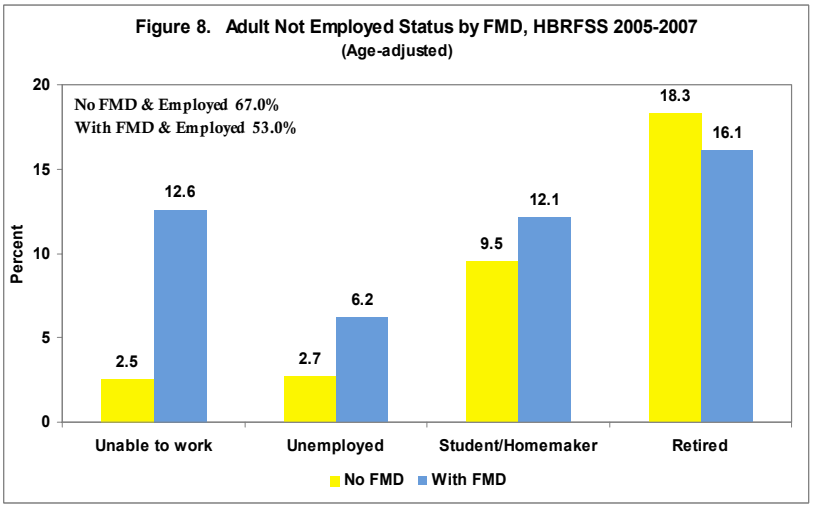
FMD status is strongly related to the level of education completed. College graduate adults are more common in the no FMD group as compared to the FMD group (35.9% vs. 24.1%). Alternatively, the percent of adults with 'less than high school' and 'high school' education is significantly higher among the FMD adults than the no FMD adults (8.4% vs. 5.3% and 38.9% vs. 29.3%, respectively). In three levels of education completed such as 'less than high school', 'high school' and 'college', the proportion differences between the FMD group and no FMD group are statistically significant at $p<0.01$.



Employment

Employment status has a strong relationship with FMD. Being unemployed may trigger or exacerbate FMD. However, FMD may trigger or exacerbate unemployment.

Nearly 13% of FMD adults reported that they were unable to work. This is more than five times the percent of the no FMD group (2.5%). Similarly, the

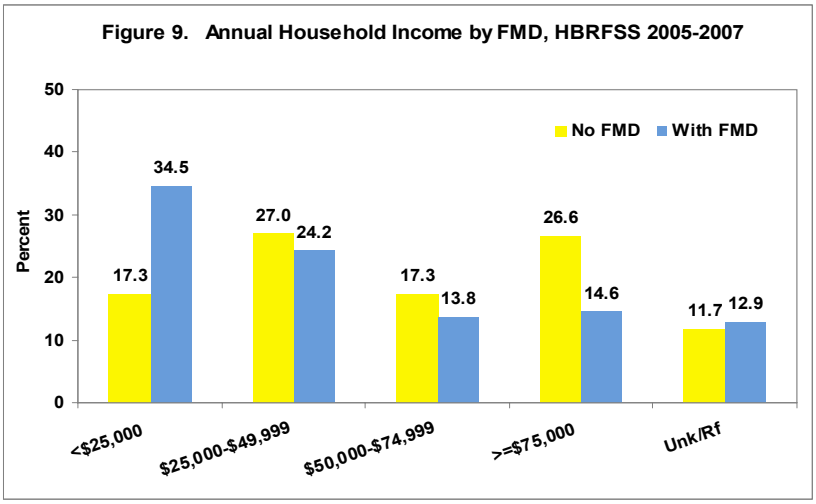


prevalence of adults who were unemployed or students/homemakers is much higher in the FMD group than in the no FMD group (6.2% vs. 2.7% and 12.1% vs. 9.5%, respectively).

In each category of employment status, proportion differences between the FMD group and the no FMD group are statistically significant at $p<0.04$. In summary, those with FMD are significantly less likely to be employed than those without FMD.

Household Annual Income

Living in a low-income household may contribute to FMD or FMD may contribute to living in a low-income household.



The FMD group has 34.5% of its households in the lower income bracket, meaning under $25,000 per annum. This percentage is significantly higher than the no FMD households, which is 17.3%. In contrast, nearly 27% of households in the no FMD group have annual incomes of at least $75,000, significantly higher than nearly 15% of households in the FMD group. In each category of household annual incomes except for 'unknown/refused', the proportion differences between the FMD group and the no FMD group are significant at $p<0.03$.

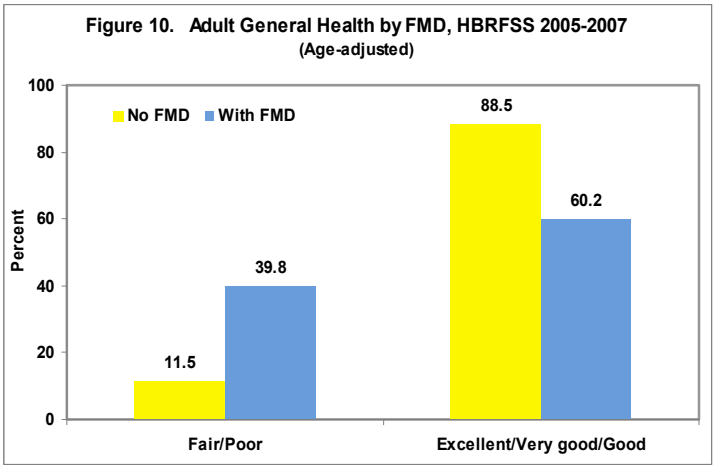
<u>Health Indicators</u>

In the previous sections it was shown that age, gender, marital status, education, employment and household income are associated with frequent mental distress. These variables are considered risk markers. This section will first present the bi-variate relationship of FMD with a specific health indicator variable as well as the unadjusted odds ratio (OR) and end with the adjusted odds ratio (AOR) result using the risk markers (age, gender, marital status, education, employment and household income) as the adjustment factors.

Perceived General Health

FMD is strongly associated with respondents' perceived general health. Nearly 40% of adults with FMD reported their general health as "fair or poor," which is more than three times

higher as compared to the 11.5% of adults in the no FMD group. The proportion difference is statistically significant at p<0.01. Parallel to the finding above, the unadjusted OR for FMD for adults with 'fair/poor health' is 4.7 times higher compared to adults with 'good, very good, excellent health' (see Appendix A). After adjusting for the risk marker variables the OR dropped slightly but are still four times as much, 4.1 (see Appendix A).

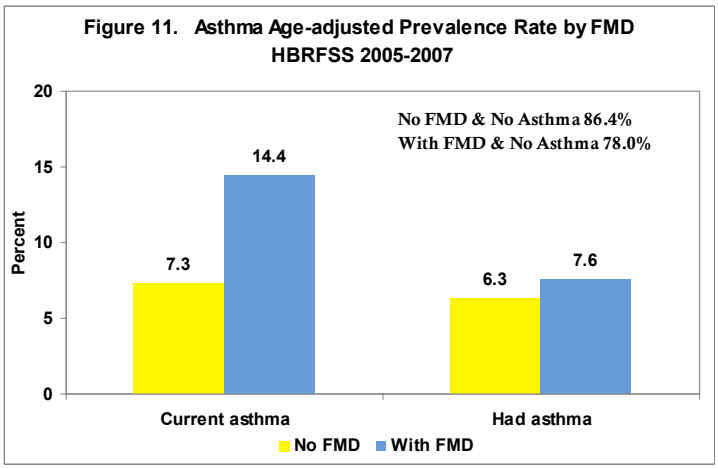


Chronic Diseases

The presence of chronic diseases may trigger or exacerbate FMD. Conversely, FMD may exacerbate or accelerate the development of chronic diseases.

1. Asthma

A strong association exists between currently having asthma and FMD. Among FMD adults, the percent of those who suffered from asthma is almost double the no FMD group (14.4% vs. 7.3%, significantly different at p<0.01).

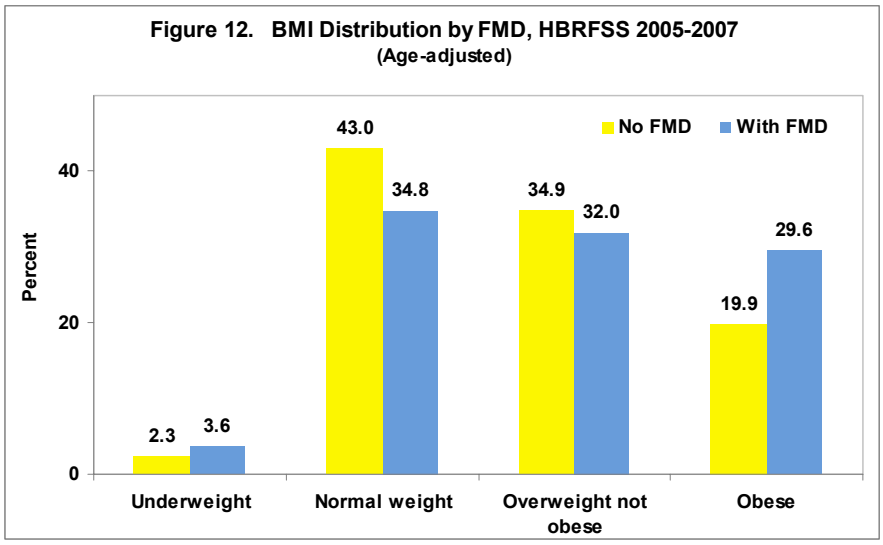


Alternatively, about 86% of adults in the no FMD group did not have asthma as compared to only 78% of adults in the FMD group (significantly different at p<0.01). The odds ratio of FMD among those with current asthma relative to those who never had asthma is 2.2. After controlling for the risk markers, the FMD odds ratio for those with current asthma dropped but still is 80% higher as compared to those who never had asthma (AOR=1.8; 95% CI=1.4, 2.3).

2. Obesity

FMD is strongly associated with body mass index (BMI). BMI is defined as weight in kilograms divided by the square of height in meters, that is, BMI= (Weight in Kg)/(Height in

meters)^2). Four categories of BMI are used, they are underweight (BMI<18.5), normal weight (18.5<=BMI<25), overweight but not obese (25<=BMI<30), and obese (BMI>=30).



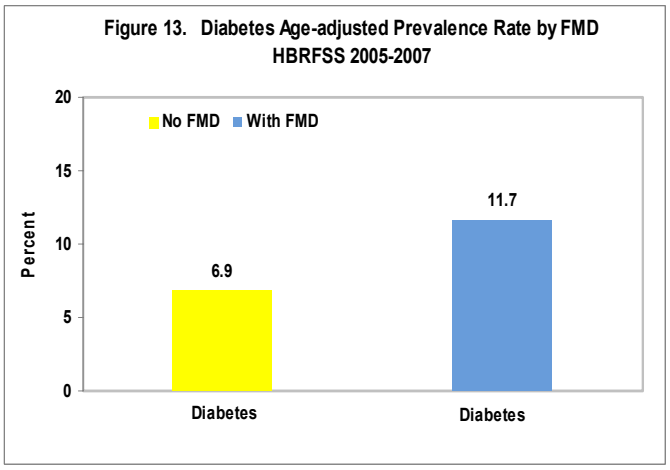
In the FMD group, almost 30% of adults are obese, but only about 20% of adults are obese in the no FMD group. On the other hand, the proportion of individuals with a normal weight is much higher in the no FMD group than in the FMD group (43% vs. 34.8%). In the category of 'obese' and 'normal weight', proportion difference between the FMD group and the no FMD group is statistically significant at p<0.01.

Parallel to these results, the unadjusted OR for FMD among underweight (OR=1.8; 95% CI=1.2, 2.8) and obese (OR=1.9; 95% CI=1.6, 2.3) adults are significant. However, the odds ratios of the same groups dropped a few points when adjusted for the risk marker. After adjustment, the FMD odds ratio for the underweight becomes insignificant (AOR=1.6; 95% CI = 1.0, 2.5) and only the obese adults have moderately higher but still significantly higher OR for FMD relative to normal weight adults (AOR=1.6; 95% CI=1.3, 1.9).

3. Diabetes

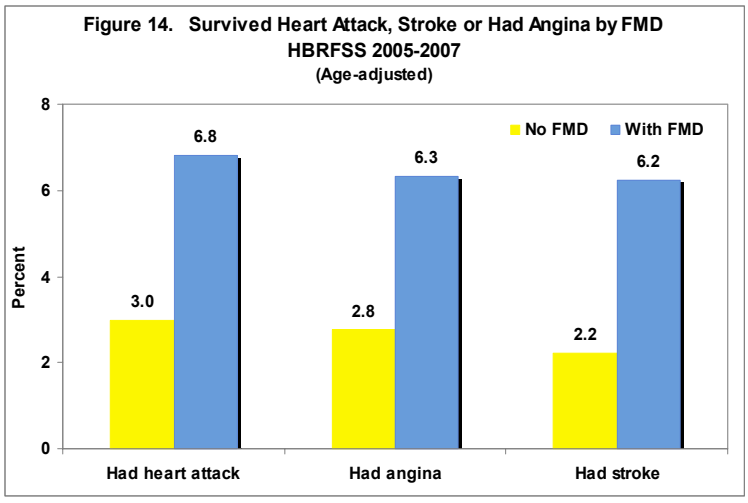
The presence of diabetes is strongly associated with FMD. Among those who have FMD, about 12% have diabetes, in contrast to nearly 7% of adults in the no FMD group. These two proportions are significantly different from each other at p<0.01.

The odds ratio for FMD among adults with diabetes remains moderately high even after controlling for the risk marker (AOR=1.5; 95% CI=1.2, 1.9).



4. Cardiovascular Diseases

Cardiovascular diseases (CVD) are also strongly associated with FMD. As compared to the group without FMD, the proportion of adults who reported having had a heart attack, angina/coronary heart disease, or a stroke is significantly higher among those who have FMD (6.8% vs. 3.0%, 6.3% vs. 2.8%, and 6.2% vs. 2.2%, respectively, significant at $p<0.01$).

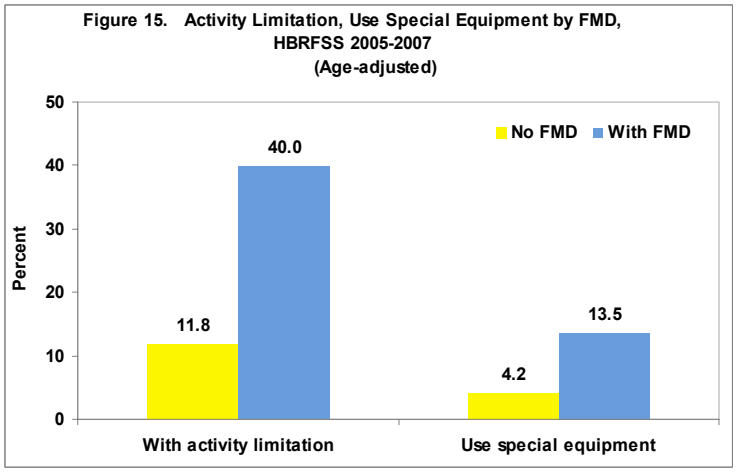


For adults with CVD, the odds ratio for FMD rose slightly after adjustment for the risk markers compared to the unadjusted odds ratio. Overall, the odds of FMD for those who had cardiovascular diseases are at least twice as much compared to those who did not have cardiovascular diseases (see Appendix A).

Disability

Disability is measured by asking questions related to activity limitation and special equipment usage. The questions are: *"Are you limited in any way in any activities because of physical, mental, or emotional problems?"* and *"Do you now have a health problem that requires you to use special equipment, such as a cane, a wheelchair, a special telephone?"*.

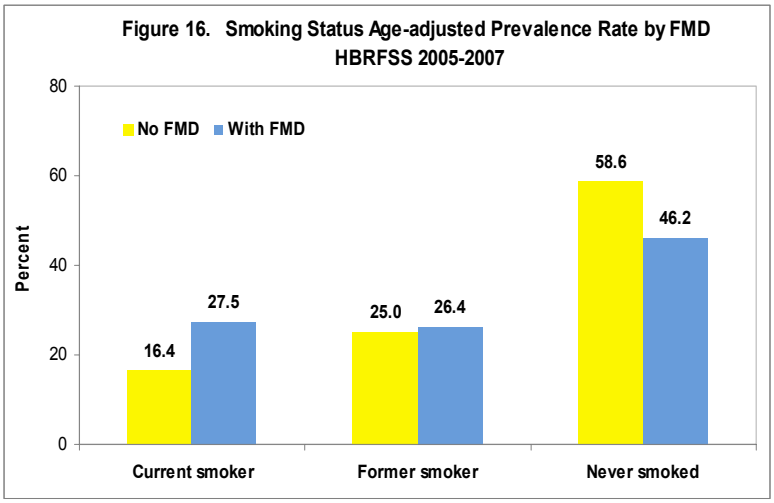
Having a disability may affect one's mental health. The result of analysis showed disability to be significantly related to FMD. Of adults in the FMD group, 40% reported suffering from 'activity limitation' because of physical, mental, or emotional problems. This is more than three times the proportion of the group without FMD (11.8%). The proportion difference is statistically significant at $p<0.01$. Parallel to this finding, both the unadjusted and adjusted odds ratio of FMD for those with activity limitations are at least four times as likely compared to those without activity limitations (AOR= 4.3; 95% CI =3.6, 5.1; see Appendix A).



Likewise, adults using special equipment are more common in the FMD group than in the no FMD group. About 14% of those with FMD use special equipment versus 4.2% of adults in the no FMD group. These two proportions are different from each other and statistically significant at $p<0.01$. Parallel to this finding, the unadjusted OR of FMD for adults using special equipment, is more than double when compared to those who did not need special equipment (OR=3.1; 95% CI=2.5, 3.8, see Appendix A). Note that the adjusted odds ratio (AOR=2.6; 95% CI=2.0, 3.3) is slightly lower than the unadjusted odds ratio but still shows moderately strong association.

Healthy Lifestyles

1. Tobacco Use



There is a strong association between FMD and smoking. Smokers are more common in the FMD group than in the no FMD group (27.5% vs. 16.4%). Alternatively, about 46% of adults with FMD never smoked as compared to almost 59% of non-smokers in the no FMD group. In the categories of 'current smoker' and 'never smoked', proportion differences between the FMD groups and the no FMD groups are statistically significant at $p<0.01$. The unadjusted odds ratio for FMD among current smokers relative to never smoker is more than twice (2.3) and nearly twice (1.8) when adjusted for risk markers variables. Similarly, those who are former smokers have moderately elevated odds for FMD relative to never smoker (see Appendix A).

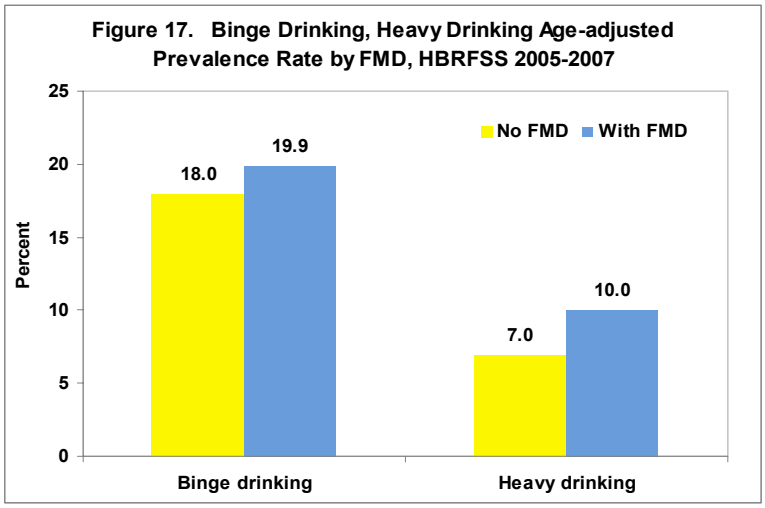
2. Alcohol

Binge drinking in CDC/BRFSS definition is having five or more drinks for men or four or more drinks for women on an occasion in the past thirty days.

No association exists between binge drinking and FMD. Nearly 20% of adults are binge drinkers in the FMD group versus 18% of adults in the no FMD group (see Figure 17). These two percentages are not significantly different from each other. The unadjusted and adjusted OR for FMD among binge drinkers relative to non-drinkers also revealed lack of significant association.

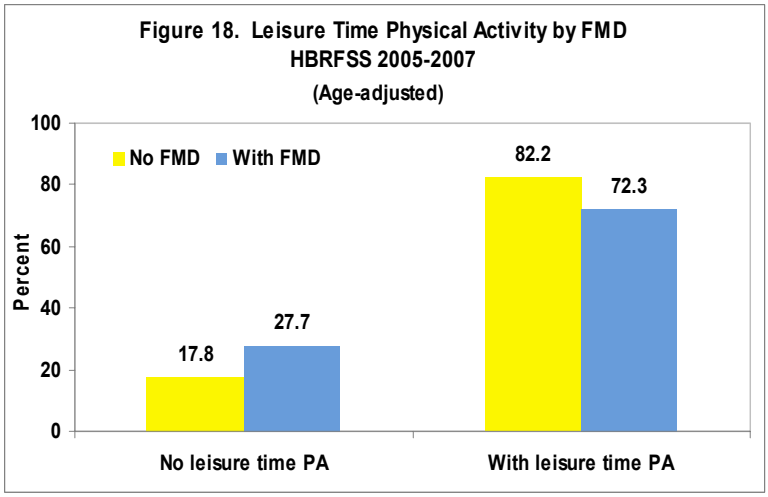
Heavy drinking in CDC/BRFSS definition is having more than two drinks per day for men or more than one drink per day for women. Unlike binge drinking, heavy drinking is associated with FMD.

Adults who reported heavy drinking thirty days prior to the survey represent 10% of those with FMD, which is significantly higher than 7% ($p<0.01$) shown in the no FMD group. The unadjusted and adjusted odd ratios of FMD among heavy alcohol drinkers relative to non-heavy alcohol drinkers remain moderately significant at 1.6 with almost identical 95% confidence intervals (see Appendix A).



3. Physical Activity

FMD is strongly related to leisure time physical activities. About 28% of adults in the FMD group reported no leisure time physical activities. In contrast, only 17.8% of adults in the no FMD group reported that they did not have leisure time physical activities. The proportion difference is statistically significant at $p<0.01$. The unadjusted OR indicated a moderate association (OR=1.7; 95% CI=1.5, 2.0) of leisure time physical activity and FMD. However, when adjusted for the risk marker, the association of leisure time physical activity appears to be weak, i.e., the OR dropped to 1.4 and the lower 95% confidence limit is nearly one (AOR=1.3; 95% CI=1.1, 1.6).



In summary, FMD is associated with an unhealthy lifestyle such as chronic drinking, smoking cigarettes and lack of physical activity. Even after adjusting for the risk markers, the odds of FMD for those who practiced unhealthy lifestyles is significantly higher as compared to those who practiced healthy lifestyles (see Appendix A).

Access to Health Care

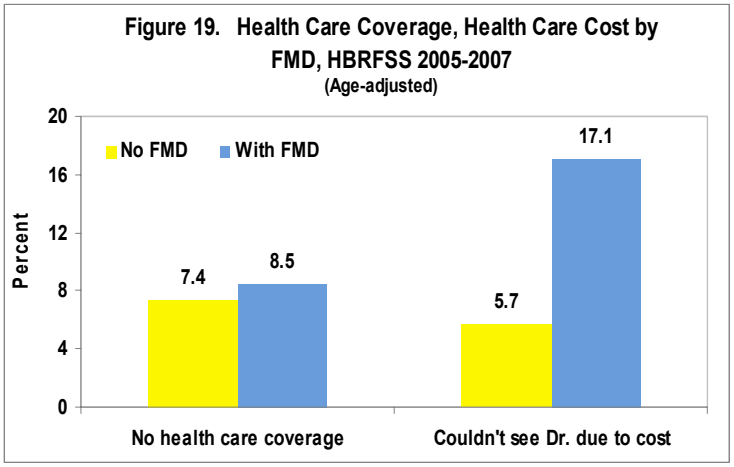
Access to health care indicators are measured by asking: *"Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"* and *"Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?"*.

1. Health Care Coverage

FMD is not associated with health care coverage. As shown in figure 19, the percent of adults who had no health care coverage is similar in the FMD group and in the no FMD group (8.5% vs.7.4%). The difference between these two percentages is not statistically significant.

2. Health Care Cost

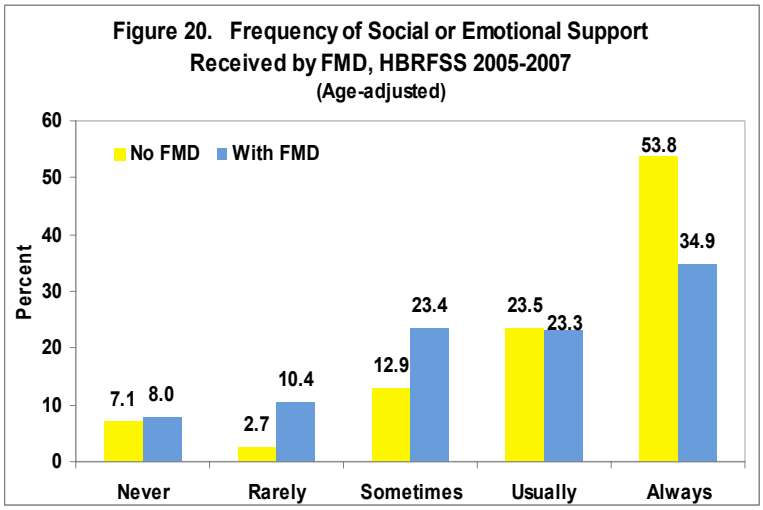
A strong association exists between FMD and access to health care in terms of cost. About 17% of adults with FMD reported that they could not see a doctor because of cost, which is three times of the percent (5.7%) in the no FMD group (Figure 19). Parallel to this result, the unadjusted odds ratio is 3.8 and may range from 3.1 to 4.7. However, after controlling for the risk marker, those who could not see a doctor due to cost are more than twice as likely to have FMD as compared to those who do not have cost constraints (AOR=2.4; 95% CI=1.9, 2.9). This suggests that inability to see a doctor when needed due to cost may trigger FMD. On the other hand, those who suffered from FMD may be more likely to be unable to afford to see a doctor as compared to those who had no FMD. It can also be a vicious cycle.



Cost barrier to health care access among adults with FMD is expected given that those with FMD are more likely to be in a lower socio-economic circumstance. As mentioned earlier, a much larger proportion of adults in the FMD group had lower educational attainment, were unemployed or unable to work, and were in households with lower annual incomes as compared to the no FMD group.

Social Support and Life Satisfaction

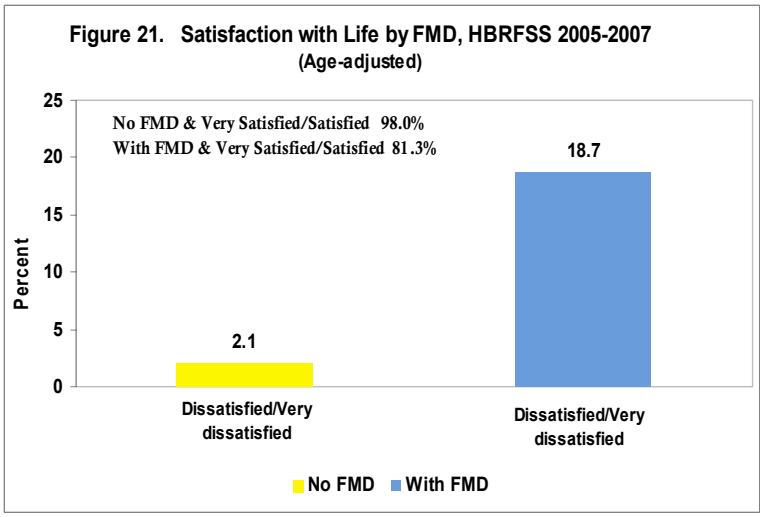
Social Support



There is a strong relationship between FMD and social or emotional support received. In the FMD group, the percent of those who reported that they sometimes or rarely received social or emotional support is much higher than in the no FMD group (23.4% vs. 12.9%, and 10.4 % vs. 2.7% respectively, significant at $p<0.01$). Alternately, the no FMD group has a significantly higher proportion of adults who reported that they always received social or emotional support as compared to the FMD group (53.8% vs. 34.9%, significant at $p<0.01$).

The unadjusted and adjusted odds ratios of FMD increased with decreased frequency of emotional support received ('always' to 'rarely') and are statistically significant as shown in Appendix A. The exception to this pattern is in the 'never' category in which the odds ratio dropped to 1.7. However, the odds ratio of FMD for adults who answered 'never' relative to adults who 'always' received emotional or social support remains moderately strong at 1.6 and may range from 1.2 to 2.3 after adjusting for the risk marker.

Satisfaction with Life



In the no FMD group, 98% of the adults reported that they were 'very satisfied' or 'satisfied' with their life. In contrast, only 81.3% of adults in the FMD group reported that they were 'very satisfied' or 'satisfied' with their life. Conversely, adults with FMD were more likely to report that they were dissatisfied or very dissatisfied with their life as compared to those in the no FMD group (18.7% vs.2.1%).

This suggests that there is a strong association between one's perceived life satisfaction and the presence of FMD. Those who were dissatisfied or very dissatisfied with their life are nearly eight times as likely to have FMD as compared to those who were very satisfied or satisfied with their life even after controlling for the risk markers (AOR=7.8; 95% CI=6.1, 10.0).

CONCLUSION AND RECOMMENDATION

The findings in this report demonstrate that disparity in FMD by ethnic group is an artifact of socio-economic status along with age. It also showed the connection of physical health and mental health. FMD status was found to be associated with general health, chronic diseases or conditions, healthy lifestyles, frequency of emotional support, life satisfaction and health care access/cost barrier even after adjusting for risk markers. There can be many indicators of mental health. However, when cost and time are constraints, frequent mental distress or FMD derived from one BRFSS mental health question *"Now, thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"* may be a sufficient indicator of the population's general mental health.

These findings emphasize the need to:

(1) improve the socio-economic environment to minimize ethnic disparity in mental health;
(2) promote healthful practices and preventive health to minimize or delay the onset of chronic diseases/conditions; and,
(3) do continuous mental health surveillance to assist program planners in designing culturally appropriate public health strategies that promote mental health and better serve the needs of those with mental health issues and vulnerable populations.

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APPENDIX A

Table 5. Odds Ratios and 95% Confidence Intervals of Frequent Mental Distress, HBRFSS 2005-2007

SELECTED VARIABLES	Unadjusted Odds Ratio	95% Confidence Interval		Adjusted* Odds Ratio	95% Confidence Interval	
		Lower Limit	Upper Limit		Lower Limit	Upper Limit
PERCEIVED GENERAL HEALTH						
Excellent/Very good/Good	(reference)	_	_	(reference)	_	_
Fair/Poor	4.7	4.0	5.4	4.1	3.4	4.9
CHRONIC DISEASES						
Asthma						
Never had asthma	(reference)	_	_	(reference)	_	_
Current asthma	2.2	1.8	2.8	1.8	1.4	2.3
Had asthma	1.4	1.0	1.8	1.3	1.0	1.8
Obesity						
Normal weight	(reference)	_	_	(reference)	_	_
Underweight	1.8	1.2	2.8	1.6	1.0	2.5
Overweight not obese	1.1	0.9	1.4	1.2	1.0	1.4
Obese	1.9	1.6	2.3	1.6	1.3	1.9
Diabetes						
No diabetes	(reference)	_	_	(reference)	_	_
diabetes	1.6	1.3	2.0	1.5	1.2	1.9
Had Heart Attack						
No	(reference)	_	_	(reference)	_	_
Yes	1.9	1.5	2.6	2.2	1.6	3.0
Had Angina						
No	(reference)	_	_	(reference)	_	_
Yes	2.0	1.5	2.7	2.3	1.6	3.2
Had Stroke						
No	(reference)	_	_	(reference)	_	_
Yes	2.3	1.7	3.2	2.2	1.6	3.2
DISABILITY						
Activity Limitation						
No	(reference)	_	_	(reference)	_	_
Yes	4.7	4.0	5.5	4.3	3.6	5.1
Use Special Equipment						
No	(reference)	_	_	(reference)	_	_
Yes	3.1	2.5	3.8	2.6	2.0	3.3
HEALTH LIFESTYLES						
Tobacco Use						
Never smoked	(reference)	_	_	(reference)	_	_
Current smoker	2.3	1.9	2.8	1.8	1.4	2.2
Former smoker	1.3	1.1	1.6	1.4	1.2	1.7
Binge Drinking Risk Factor						
No	(reference)	_	_	(reference)	_	_
Yes	1.3	1.0	1.5	1.3	1.0	1.6

* Adjusting for age, gender, education, employment, annual household income and marital status.

Continuation

Table 5. Odds Ratios and 95% Confidence Intervals of Frequent Mental Distress, HBRFSS 2005-2007

SELECTED VARIABLES	Unadjusted Odds Ratio	95% Confidence Interval		Adjusted* Odds Ratio	95% Confidence Interval	
		Lower Limit	Upper Limit		Lower Limit	Upper Limit
HEALTH LIFESTYLES						
Heavy Drinking Risk Factor						
No	(reference)	_	_	(reference)	_	_
Yes	1.6	1.2	2.0	1.6	1.2	2.1
Had Leisure Time Physical Activity						
Yes	(reference)	_	_	(reference)	_	_
No	1.7	1.5	2.0	1.3	1.1	1.6
ACCESS TO HEALTH CARE						
Had Health Care Coverage						
Yes	(reference)	_	_	(reference)	_	_
No	1.3	1.0	1.7	0.8	0.6	1.0
Couldn't See Dr. Due to Cost						
No	(reference)	_	_	(reference)	_	_
Yes	3.8	3.1	4.7	2.4	1.9	2.9
SOCIAL SUPPORT AND LIFE SATISFACTION						
How Often Got Emotional Support Needed						
Always	(reference)	_	_	(reference)	_	_
Usually	1.6	1.3	2.0	1.6	1.3	2.0
Sometimes	3.0	2.4	3.6	2.5	2.0	3.2
Rarely	6.1	4.6	8.1	4.9	3.6	6.7
Never	1.7	1.3	2.4	1.6	1.2	2.3
Life Satisfaction						
Very satisfied/Satisfied	(reference)	_	_	(reference)	_	_
Dissatisfied/Very dissatisfied	11.4	9.1	14.4	7.8	6.1	10.0

* Adjusting for age, gender, education, employment, annual household income, and marital status.

Table 6. Frequent Mental Distress Crude Prevalence Rate by Selected Demographics, HBRFSS 2005-2007

	FMD Crude prevalence (%)	95% Confidence Interval		Est. Adults with FMD
		Lower Limit	Upper Limit	
STATE	8.3	7.7	8.8	80,188
COUNTY				
Hawaii	9.0	8.0	10.2	11,079
Honolulu	8.2	7.5	9.0	57,158
Maui	8.1	7.0	9.2	8,479
Kauai	7.5	6.1	9.1	3,466
AGE GROUP				
18-24 years	9.6	7.5	12.2	11,707
25-34 years	9.6	8.2	11.3	15,659
35-44 years	8.0	7.0	9.3	14,260
45-64 years	9.3	8.4	10.2	30,297
65+ years	4.6	3.8	5.4	7,972

Table 7. Frequent Mental Distress Age-adjusted Prevalence Rate by Gender and Ethnicity, HBRFSS 2005-2007

	FMD Age-adjusted prevalence (%)	95% Confidence Interval	
		Lower Limit	Upper Limit
GENDER			
Male	7.2	6.4	8.0
Female	9.5	8.7	10.3
ETHNICITY			
Hawaiian	10.9	9.3	12.7
White	8.5	7.6	9.5
Filipino	7.8	6.4	9.4
Chinese	6.5	4.0	10.4
Japanese	6.1	5.1	7.4
Others	11.0	9.1	13.2

Table 8. Percent Distribution of Household by Presence of FMD and by Adult Household Size, HBRFSS 2005-2007

ATTRIBUTES	Household member With FMD	95% Confidence Interval		Household member No FMD	95% Confidence Interval	
		Lower Limit	Upper Limit		Lower Limit	Upper Limit
Number of Adults						
Single adult household	32.3	24.6	26.1	25.3	29.8	35.0
Two or more adult in a household	67.7	73.9	75.4	74.7	65.0	70.2

Table 9. Percent Distribution of Adults by Presence of FMD and by Selected Attributes, HBRFSS 2005-2007

(Age-adjusted)

ATTRIBUTES	With FMD	95% Confidence Interval		No FMD	95% Confidence Interval	
		Lower Limit	Upper Limit		Lower Limit	Upper Limit
MARITAL STATUS						
Married	49.4	59.4	61.2	60.3	46.2	52.6
Divorced, separated, widowed	22.4	15.2	16.6	15.9	20.0	25.0
Never married	28.2	23.0	24.6	23.8	25.6	31.0
EDUCATION						
<High school	8.4	4.9	5.8	5.3	6.7	10.6
High school	38.9	28.3	30.3	29.3	35.5	42.4
Some college	28.6	28.5	30.5	29.5	25.6	31.8
College	24.1	35.0	36.9	35.9	21.5	27.0
EMPLOYMENT						
Employed	53.0	66.2	67.9	67.0	49.9	56.2
Unemployed	6.2	2.4	3.1	2.7	4.7	8.0
Unable to work	12.6	2.2	2.9	2.5	10.7	14.8
Student/Homemaker	12.1	8.9	10.2	9.5	10.0	14.7
Retired	16.1	17.9	18.7	18.3	14.6	17.6
HOUSEHOLD INCOME						
<$25,000	34.5*	16.7	18.0	17.3*	32.0	37.2
$25,000 - $49999	24.2*	26.3	27.8	27.0*	21.9	26.7
$50,000 - $74,999	13.8*	16.7	18.0	17.3*	12.0	15.8
>=$75,000	14.6*	25.9	27.4	26.6*	12.7	16.7
Unknown/Refused	12.9*	11.2	12.3	11.7*	11.1	14.9
PERCEIVED GENERAL HEALTH						
Excellent/Very good/Good	60.2	87.9	89.1	88.5	57.0	63.3
Fair/Poor	39.8	10.9	12.1	11.5	36.7	43.0
ASTHMA						
Current asthma	14.4	6.8	7.9	7.3	12.1	17.1
Had asthma	7.6	5.8	6.9	6.3	5.9	9.7
Never had asthma	78.0	85.6	87.1	86.4	74.9	80.8
OBESITY						
Underweight	3.6	2.0	2.6	2.3	2.5	5.3
Normal weight	34.8	42.0	44.1	43.0	31.5	38.2
Overweight but not obese	32.0	33.9	35.9	34.9	28.8	35.3
Obese	29.6	19.0	20.8	19.9	26.6	32.9
DIABETES						
With diabetes	11.7	6.4	7.3	6.9	9.8	13.9

Continuation

Table 9. Percent Distribution of Adults by Presence of FMD and by Selected Attributes, HBRFSS 2005-2007

(Age-adjusted)

ATTRIBUTES	With FMD	95% Confidence Interval		No FMD	95% Confidence Interval	
		Lower Limit	Upper Limit		Lower Limit	Upper Limit
HAD HEART ATTACK						
Yes	6.8	2.7	3.3	3.0	5.3	8.7
HAD ANGINA						
Yes	6.3	2.5	3.1	2.8	4.9	8.2
HAD STROKE						
Yes	6.2	2.0	2.5	2.2	4.7	8.2
ACTIVITY LIMITATION						
Yes	40.0	11.2	12.4	11.8	36.9	43.2
USE SPECIAL EQUIPMENT						
Yes	13.5	3.9	4.6	4.2	11.5	15.8
TOBACCO USE						
Current smoker	27.5	15.6	17.2	16.4	24.5	30.6
Former smoker	26.4	24.2	25.9	25.0	23.7	29.3
Never smoked	46.2	57.6	59.6	58.6	42.7	49.7
BINGE DRINKING						
Yes	19.9	17.1	18.9	18.0	17.2	22.9
HEAVY DRINKING						
Yes	10.0	6.5	7.6	7.0	8.1	12.4
HAD LEISURE TIME PHYSICAL ACTIVITY						
Yes	72.3	81.4	83.0	82.2	69.2	75.1
No	27.7	17.0	18.6	17.8	24.9	30.8
HAD HEALTH CARE COVERAGE						
No	8.5	6.8	8.0	7.4	6.8	10.6
COULDN'T SEE DR. DUE TO COST						
Yes	17.1	5.2	6.2	5.7	14.7	19.8
SOCIAL OR EMOTIONAL SUPORT RECEIVED						
Always	34.9	52.8	54.9	53.8	31.5	38.5
Usually	23.3	22.6	24.4	23.5	20.5	26.3
Sometimes	23.4	12.2	13.7	12.9	20.6	26.5
Rarely	10.4	2.3	3.1	2.7	8.4	12.8
Never	8.0	6.6	7.7	7.1	6.3	10.2
LIFE SATISFACTION						
Very satisfied/Satisfied	81.3	97.6	98.3	98.0	78.6	83.8
Dissatisfied/Very dissatisfied	18.7	1.8	2.4	2.1	16.3	21.4

APPENDIX B

2005-2007 Hawaii BRFSS Survey Questions Relevant to the Analysis

Section 1: Health Status

1.1 Would you say that in general your health is—

Please read:

1 Excellent
2 Very good
3 Good
4 Fair

Or

5 Poor

Do not read:

7 Don't know / Not sure
9 Refused

Section 3: Health Care Access

3.1 Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

1 Yes
2 No
7 Don't know / Not sure
9 Refused

3.2 Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 4: Exercise

4.1 During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 5: Diabetes

5.1 Have you ever been told by a doctor that you have diabetes?

If "Yes" and respondent is female, ask: "Was this only when you were pregnant?"

If respondent says pre-diabetes or borderline diabetes, use response code 4.

1 Yes
2 Yes, but female told only during pregnancy
3 No
4 No, pre-diabetes or borderline diabetes
7 Don't know / Not sure
9 Refused

Section 8: Cardiovascular Disease Prevalence

Now I would like to ask you some questions about cardiovascular disease.

Has a doctor, nurse, or other health professional EVER told you that you had any of the following? For each, tell me "Yes", "No", or you're "Not sure."

8.1 (Ever told) you had a heart attack, also called a myocardial infarction?

1 Yes
2 No
7 Don't know / Not sure
9 Refused

8.2 (Ever told) you had angina or coronary heart disease?

1 Yes
2 No
7 Don't know / Not sure
9 Refused

8.3 (Ever told) you had a stroke?

1 Yes
2 No
7 Don't know / Not sure
9 Refused

Section 9: Asthma

9.1 Have you ever been told by a doctor, nurse, or other health professional that you had asthma?

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

9.2 Do you still have asthma?

1	Yes
2	No
7	Don't know / Not sure
9	Refused

Section 11: Tobacco Use

11.1 Have you smoked at least 100 cigarettes in your entire life?

NOTE: 5 packs = 100 cigarettes

1	Yes	
2	No	**[Go to next section]**
7	Don't know / Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

11.2 Do you now smoke cigarettes every day, some days, or not at all?

1	Every day	
2	Some days	
3	Not at all	**[Go to next section]**
7	Don't know/Not sure	**[Go to next section]**
9	Refused	**[Go to next section]**

Section 12: Demographics

12.1 What is your age?

_ _	Code age in years
0 7	Don't know / Not sure
0 9	Refused

12.2 Are you Hispanic or Latino?

1	Yes
2	No

7 Don't know / Not sure
9 Refused

12.5 Are you…?

Please read:

1 Married
2 Divorced
3 Widowed
4 Separated
5 Never married

Or

6 A member of an unmarried couple

Do not read:

9 Refused

12.6 What is the highest grade or year of school you completed?

Read only if necessary:

1 Never attended school or only attended kindergarten
2 Grades 1 through 8 (Elementary)
3 Grades 9 through 11 (Some high school)
4 Grade 12 or GED (High school graduate)
5 College 1 year to 3 years (Some college or technical school)
6 College 4 years or more (College graduate)

Do not read:

9 Refused

12.7 Are you currently…?

Please read:

1 Employed for wages
2 Self-employed
3 Out of work for more than 1 year
4 Out of work for less than 1 year
5 A Homemaker
6 A Student
7 Retired

Or

8 Unable to work

Do not read:

9 Refused

12.8 Is your annual household income from all sources—

If respondent refuses at ANY income level, code '99' (Refused)

Read only if necessary:

04 Less than $25,000 **If "no," ask 05; if "yes," ask 03**
($20,000 to less than $25,000)

03 Less than $20,000 **If "no," code 04; if "yes," ask 02**
($15,000 to less than $20,000)

02 Less than $15,000 **If "no," code 03; if "yes," ask 01**
($10,000 to less than $15,000)

01 Less than $10,000 **If "no," code 02**

05 Less than $35,000 **If "no," ask 06**
($25,000 to less than $35,000)

06 Less than $50,000 **If "no," ask 07**
($35,000 to less than $50,000)

07 Less than $75,000 **If "no," code 08**
($50,000 to less than $75,000)

08 $75,000 or more

Do not read:

77 Don't know / Not sure
99 Refused

12.9 About how much do you weigh without shoes?

Note: If respondent answers in metrics, put "9" in column 122.

Round fractions up

_ _ _ _ Weight
(pounds/kilograms)
7 7 7 7 Don't know / Not sure
9 9 9 9 Refused

12.10 About how tall are you without shoes?

Note: If respondent answers in metrics, put "9" in column 126.

Round fractions down

_ _ / _ _ Height
(f t / inches/meters/centimeters)
7 7 7 7 Don't know / Not sure
9 9 9 9 Refused

12.11 What county do you live in?

_ _ _ FIPS county code
7 7 7 Don't know / Not sure
9 9 9 Refused

12.12 **Indicate sex of respondent. Ask only if necessary.**

1 Male **[Go to next section]**
2 Female **[If respondent is 45 years old or older, go to next section]**

Section 13: Alcohol Consumption

13.1 During the past 30 days, have you had at least one drink of any alcoholic beverage such as beer, wine, a malt beverage or liquor?

1 Yes
2 No **[Go to next section]**
7 Don't know / Not sure **[Go to next section]**
9 Refused **[Go to next section]**

13.2 During the past 30 days, how many days per week or per month did you have at least one drink of any alcoholic beverage?

1_ _ _ Days per week
2_ _ _ Days in past 30 days
8 8 8 No drinks in past 30 days **[Go to next section]**
7 7 7 Don't know / Not sure
9 9 9 Refused

13.3 One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor. During the past 30 days, on the days when you drank, about how many drinks did you drink on the average?

_ _ Number of drinks
7 7 Don't know / Not sure
9 9 Refused

13.4 Considering all types of alcoholic beverages, how many times during the past 30 days did you have **X [CATI X = 5 for men, X = 4 for women]** or more drinks on an occasion?

_ _ Number of times
8 8 None
7 7 Don't know / Not sure
9 9 Refused

13.5 During the past 30 days, what is the largest number of drinks you had on any occasion?

_ _ Number of drinks
7 7 Don't know / Not sure
9 9 Refused

Section 14: Disability

The following questions are about health problems or impairments you may have.

14.1 Are you limited in any way in any activities because of physical, mental, or emotional problems?

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

14.2 Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?

Include occasional use or use in certain circumstances.

1 Yes
2 No
7 Don't know / Not Sure
9 Refused

Section 19: Emotional Support and Life Satisfaction

The next two questions are about emotional support and your satisfaction with life.

19.1 How often do you get the social and emotional support you need?

INTERVIEWER NOTE: If asked, say "please include support from <u>any</u> source".

Please read:

1 Always
2 Usually
3 Sometimes
4 Rarely
5 Never

Do not read:

7 Don't know / Not sure
9 Refused

19.2 In general, how satisfied are you with your life?

Please read:

1 Very satisfied
2 Satisfied
3 Dissatisfied
4 Very dissatisfied

Do not read:

7 Don't know / Not sure
9 Refused

SAQ4. Which one of these groups would you say represents your ethnicity? You can mention up to six.

Please read

1 Caucasian (includes European, German, Irish, Italian, English)
2 Hawaiian
3 Chinese
4 Filipino
5 Japanese
6 Korean
7 Samoan
8 Black
9 American Indian/ Alaska Native/ Eskimo/ Inuit
10 Vietnamese
11 Asian Indian
12 Portuguese
13 Guamanian/Chamorro
14 Puerto Rican
15 Mexican
16 Tongan
17 Laotian
18 Cambodian
19 Malaysian
20 Fijian
21 Micronesian
22 Other Asian (specify)
23 Other (specify)

Do not read

24 Don't know/ Not sure

25 Refuse

26 No additional choices

SAQ5. Ask only if more than one answer in SAQ4. Which one of these groups would you say best represents your ethnicity?

Please read

1 Caucasian (includes European, German, Irish, Italian, English)
2 Hawaiian
3 Chinese
4 Filipino
5 Japanese
6 Korean
7 Samoan
8 Black
9 American Indian/ Alaska Native/ Eskimo/ Inuit
10 Vietnamese
11 Asian Indian
12 Portuguese
13 Guamanian/Chamorro
14 Puerto Rican
15 Mexican
16 Tongan
17 Laotian
18 Cambodian
19 Malaysian
20 Fijian
21 Micronesian
22 Other Asian (specify)
23 Other (specify)

Do not read

24 Don't know/ Not sure
25 Refuse
26 No additional choices

Frequent Mental Distress Prevalence and Disparity: Hawaii BRFSS 2005-2007

This publication is available on the World Wide Web at the Hawaii Behavioral Risk Factor Surveillance System site http://www.hawaii.gov/health/statistics/brfss/index.html.

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